

## Collecting Notes from the Great Basin and Adjoining Territory (Dipt., Col.).\*

By J. M. ALDRICH, Moscow, Idaho.

In the summer of 1911 I traveled about 5000 miles in a 62-day expedition having for its main object the study of the insects found in and about the western salt and alkaline lakes. Although I have published four articles on my results and have another in press, there are so many facts of entomological interest remaining that a more general discussion of the theme seems to be required. Much of my material outside the Diptera still remains unidentified, hence it is even yet impossible to give a list of the species collected. Nor do I think such a list wholly desirable, as it would contain only here and there a species of real interest, nine-tenths being comparatively common and widespread insects. The better way would be to enumerate only species not heretofore known in the territory under consideration, or those whose distribution is little understood. This plan will be pursued with the Diptera, while other orders must wait indefinitely.

The first three weeks of the trip were spent with a farmers' institute party from the University of Idaho, to whom had been assigned a schedule of institutes mostly in rather out-of-the-way places. Our itinerary took us to Payette Lake and down Long Valley to the southward, a fine collecting ground for all kinds of insects, and now becoming accessible through the construction of a branch railroad from Nampa. We were there too early, about June 20; nearly a month later would have been better. The valley is bordered on both sides by heavily timbered and snow-capped mountains, the summits being only a few miles from civilization, ideal for entomological work. Along the main line of the Oregon Short Line as we progressed eastward there is nothing of especial interest in the way of a collecting ground until Pocatello is passed. East of this point the railroad enters a mountain valley, and the entomological field is highly interesting until the Wyoming line is reached. We left the railroad at Montpelier and made

---

\*Part of the results of an investigation made by aid of an appropriation from the Elizabeth Thompson Science Fund.

the interior points of St. Charles and Liberty. This also is a high country and it was early for good collecting. The next and concluding institute was at Malad City on July 3, and from here my trip of investigation began. I had collected so far only the following Diptera of special interest:

At McCall, Idaho, on Payette Lake, *Aemosyrphus mexicanus*.

At Council, *Atherix variegata*.

At Boise, *Heteroptera nasoni* and *n. sp.*

At Soldier, *Tabanus phaenops*.

At Bellevue, *Campsicnemus thersites*, *Dolichopus coquilletti*, *Chrysopila tomentosa*.

At McCammon, *Pelina truncatula*, *Tephritis clathrata*.

On the roundabout railroad trip into Malad, a day had been spent on a side trip to the Utah Agricultural College at Logan; while awaiting the train at Cache Junction, I collected *Dolichopus amnicola* and *Hydrophorus gratiosus* Ald. In Logan I found *Chiromyia* (*Scyphella*) *flava* common on a stable window.

At Brigham City, Utah, on July 4 and 5, I spent the available time at Box Elder Lake, an expanse of brackish, shallow water about two miles north of town. On the way thither along the railroad were great quantities of parsnip in bloom. On these I got three species of *Thereva* and specimens of *Helophilus similis* and *Sarcophila* (*Paraphyto*) *opaca*. Along the shores of the lake or pond I found a new species of *Lispa* (described in a forthcoming paper), also *Ephydra subopaca*, which breeds in the salt waters; in the adjacent grasses along a waste water ditch occurred *Melieria occidentalis* and a new species of *Pelastoneurus*, while I was attacked by *Chrysops discalis*, *fulvaster* and *moerens*. On the bare mud, where the lake had recently dried away, there were many specimens of *Cicindela echo*, somewhat difficult to capture from a bad habit of flying a long distance when flushed; they enter the shallow water fearlessly and run about in it where it is a quarter or three-eighths of an inch deep, capturing some kind of prey there. In this situation they are unable to take wing, and I picked up a few specimens from the water in my fin-

gers. This habit in a *Cicindela* was new to me. In the vicinity of the pond I got *Dolichopus afflictus*, which is unusual so far east, although it has been reported from Wyoming.

About Salt Lake City there is of course much to interest the entomologist. The electric line up Emigrant Canyon gives a ride up to about 7000 feet altitude for 80 cents, and should never be overlooked by collectors who visit the city in summer. Near the end of the line, high up in the mountains, I captured *Dolichopus n. sp.*, *Tachytrechus n. sp.* and *Hydrophorus philombrius*. The shores of Great Salt Lake are easily accessible by going to Saltair or by taking the local trains which run out to Garfield and Smelter station next beyond. The local train turns round on a Y just beyond Smelter, and from this it is only a short distance to the shore of the lake. There is some brackish water in spots between, around which I collected, but the shore of the lake is a particularly rich field. *Ephydra gracilis* occurs by millions, the larva living in the water; *Ephydra hians* is also numerous in places on the shores, and likewise lives in the water in the larval stage. *Caenia bisetosa* occurs abundantly along the edge of the water, but its larva has not been found. The brackish water back from the lake has along its edges a beautiful new species of *Tachytrechus*.

I stopped off from morning until 5 P. M. at Promontory Point, almost in the middle of the lake, where I found essentially the same beach fauna as near Salt Lake City, adding *Rhichnoessa coronata*. The wife of the station agent kindly provided me with dinner, as there is no hotel. The same afternoon I continued across the lake to Lakeside on the west shore, where again the beach fauna is about the same. It is a sidetrack with a few railroad employees, the surrounding country an absolute desert. The main divide between the ancient lake basin of Utah and that of Nevada is a little east of Wells, Nevada, which was the point I selected for my next stop, having been informed that it was on the bank of a river. I had to inquire in the town, after a vain search, whether there was any water near, and was informed that there was a little seepage about a mile below town. It was 2 P. M.

when I got off the train, and I had already lost an hour, so I made what haste I could in the hot sun to the place indicated, where I found in a small space more new and interesting Diptera than I ever collected in the same time before. Within two hours the following and many more common species were obtained: *Anacampta latiuscula* and two new species; *Dolichopus ciliatus*, *annicola*, *obcordatus* and five undescribed species; *Sphagina n. sp.*, *Euparyphus n. sp.*, *Asyndetus n. sp.*, *Calobata pallipes*, *Palloptera jucunda*, *Diaphorus palpiger* and *opacus*, *Hydrophorus sodalis* and *magdalenae*, *Lispa tentaculata* and *uliginosa*, and some not yet fully determined. In accordance with my plans, I continued my journey at ten that evening, but there are some very attractive-looking high mountains a few miles south of Wells that had timber and snow upon them, which would in my opinion be one of the best collecting fields in the West.

Hazen, Nevada, was reached the next morning. A good hotel is the principal feature of the place, which consists principally of a few railroad employees. The Soda Lakes are about ten miles south, being some two miles from Mirage siding, on the Fallons branch. They are small bodies of very alkaline water, where quite a business was done in the manufacture of soda until the seepage from the new irrigating canals of the Truckee-Carson government irrigation project raised the level above the evaporating beds and put a stop to the enterprise. I stayed over night with the caretaker at the works and collected at the shore of the lakes *Ephydra hians* and *Caenia bisetosa*, as at Great Salt Lake. A single male of *Hydrophorus plumbeus* Ald. was found also, known previously only from a single female from Soap Lake, Washington. Around fresh or brackish seepage I found another new species of *Dolichopus*, *Hydrophorus aestuum* and *gratiosus*, *Pelastoneurus cyaneus*, *Thrypticus fraterculus*, and *Melieria occidentalis*. *Chrysops discalis* was occasionally present.

On July 14 I made a visit to Reno and called upon Professor S. B. Doten, whom I found much engrossed with his interesting investigation of the habits of Hymenopterous parasites, for which he has invented several ingenious pieces of apparatus; his devices for instantaneous photography under

the microscope are especially worthy of commendation. A short stroll around the outskirts of the town yielded *Thrypticus fraterculus*, *Chrysomyza demandata*, *Asemosyrphus mexicanus*, *Madiza (Desmometopa) halteralis* and some commoner things.

The next day I returned eastward to Wadsworth and took the stage 20 miles north to the Nevada Indian School, where the superintendent, Mr. J. D. Oliver, provided me with accommodations and I remained four days. The trip in was highly interesting to me, as I discovered a really garrulous Indian in the driver "Fat Joe," and we struck up a warm friendship. The school is four miles from Pyramid Lake and eight from Winnemucca Lake, both of which I visited. They are moderately alkaline, but contain large quantities of fish. There is a more alkaline pond a mile south of Pyramid Lake, but it was difficult to reach, as it was on the other side of the Truckee River and the water was high; so I did not visit it. The bottoms of the Truckee River are verdant in this desert region and offer some good insects. The shore of Pyramid yielded a few *Lispa*s of an undescribed species, as well as *Ephydra hians*; at Winnemucca I found still another undescribed *Lispa* with several common species of the genus. Among the Diptera collected on my trips to and from the lakes and about the Indian school were *Chrysops discalis* and *coloradensis*, *Tabanus opacus*, *Exoprosopa cremita*, *Anthrax agrippina*, *nugator*, *lepidota*, *Ceria tridens*, *Tachytrechus angustipennis*, *Thrypticus fraterculus*, *Hydrophorus gratiosus* and *philombrius*, *Geomyza frontalis*, *Rhinoessa albula*, *Urelia abstersa* and *Caenia bisetosa*.

On July 19 I returned to Wadsworth and took the train to Hazen, where I took the Goldfield train next morning to the little freighting station of Thorne, close to the south end of Walker Lake. An automobile conveys the passengers seven miles across a very sandy desert to the county seat town of Hawthorne, occupying a little oasis less than half a mile square. After dinner another auto stage runs before supper-time to Bodie, California, climbing over the Walker Lake mountain range, crossing a valley and ascending almost exactly to the summit of the next range, Bodie having an ele-

vation of 8400 feet. The road was good and our speedometer indicated 35 miles an hour on one down grade stretch, with seven passengers and a heavy load of mail, express and baggage. Bodie is an old, decayed mining camp with a few hundred inhabitants. Next morning a horse stage driven by a Mexican took me to one of my main objective points, Mono Lake, a distance of 22 miles. I stopped at the Mono Lake post-office and secured accommodations for a few days at the combined store, saloon, hotel, blacksmith shop and feed mill of Jack Hammond, about a mile beyond. Here I devoted my first attention to the insects of the lake itself. It is a highly alkaline body of water and contains vast numbers of the larvae of *Ephydra hians*, used in the pupa stage as food by the Indians under the name of "koo-tsabe." The specific identity of the fly had not been ascertained prior to my visit. Along the west side of the lake the shores rise abruptly into the Sierras, and there are numbers of rapid streams, large and small. The collecting is superb, and I could have spent more time to good advantage, but my plans limited me to four days. Besides some new species, the following are the more interesting results of my collecting: *Bittacomorpha sackeni*, *Tabanus opacus* and *phaenops*, *Thereva johnsoni*, *Tachytrechus olympiae* and *angustipennis*, *Nothosympycnus vegetus*, *Psilopodinus pilicornis*, *Sympycnus marcidus*, *Chrysogaster nigrovittata*, *Clausicella setigera*, *Notonaulax cincta* and *Themira putris*.

Mono Lake lies close against the east side of the main Sierras, directly east of Yosemite Park, which comes up to the divide, about 16 miles by trail from the lake. Parties not infrequently come down to the lake from the Park; in fact it is more visited from that side than from the railroad some 65 miles away to the eastward. When I was there the Sierras towering above it were covered with great fields of snow and I never saw a more picturesque view than the one looking down on the lake and across it to the mountains, from the range near Bodie.

On my return to the railroad I had to stay over night at Thorne, in order to have time to box up some freight for shipment. The hotel business mostly goes to Hawthorne, but I felt well repaid for any little inconvenience of my stay in

Thorne in making the acquaintance of "Doc" Stewart, mine host at the Old Crow,—an old-timer of the sixties, whose warm-hearted interest in me is a pleasant memory.

From Thorne I continued my journey to Southern California by an unusual route, as it was necessary to include Owen's Lake in the itinerary. I continued down the Goldfield railroad to Mina, where I changed to a narrow-gauge line that ends at Keeler, on the east side of Owen's Lake. I left this line at Owenyo, where it is joined by a Southern Pacific broad gauge branch that strikes the main line at Mojave, from which it is easy to reach Los Angeles.

We reached Owenyo about midnight, several hours behind time, and were accommodated in a box car hotel, the single men occupying hard bunks in an undivided car. Next morning the mixed train on the branch took me as far down as Olancha, which I had been informed would be a good point from which to inspect the west shore of the lake. It proved to be about five miles beyond the lake, so I put in most of the day collecting along a beautiful little mountain stream coming out of the Sierras and around some seepage near the lake. Diptera of interest were *Pelastoneurus dissimilipes*, *Tachytrechus auratus* and *Rhagoletis minuta*. Many insects of other orders occupied my attention and would be well worth recording if they had been identified. That evening I took the up train again to get to a point near the lake, and (accepting advice again) stopped off at Brier siding at 10 P. M., only to find that the ranch supposed to be there was at another siding and there was not a human being within miles except the Mexican boy who had driven down from the Los Angeles aqueduct camp to pick up any Slavs who might have drifted in to work on the ditch. The boy took me up to the camp and let me sleep on a few sacks on the ground. Next morning I secured breakfast with the laborers and walked to the lake, where I made what observations were necessary in time to leave again on the southbound train. The lake is densely alkaline and is full of the larvae of *Ephydra hians*.

The evening of this day found me in Los Angeles and the remainder of the trip may be passed over in a few paragraphs. In Los Angeles I collected carefully about the ponds of crude

petroleum in the oil well district for *Psilopa petrolei*; although I could not find the larva in the petroleum, I succeeded in getting the adults on grass around the pools. In the same locality was *Pelastoneurus dissimilipes*.

On the beach at Santa Monica were many specimens of a new species of *Stichopogon*, and on the surface of a brackish pool close to the beach was a swarm of *Ephydra millbrae*.

On the beach at Long Beach *Lipochaeta slossonae* was abundant.

At Lake Elsinore, an alkaline lake south of Riverside, I captured the same beautiful new species of *Tachytrechus* that I got at the south end of Great Salt Lake; also a single specimen of a new species of *Lispa*, of which I later secured a pair at fresh water at Lewiston, Idaho. *Cacnia bisetosa* was the most abundant insect at the shore.

On the salt marsh adjacent to Palo Alto I collected several specimens of a species of *Canace*, a very peculiar sort of Ephydrid; also *Hercostomus metatarsalis*, *Pelastoneurus cyaneus* and *Hydrophorus aestuum*.

A two days' trip of a strenuous sort was made to Clear Lake, Lake County, Cal., from San Francisco, to ascertain what sort of *Ephydra* it was of which the larva had been named *E. californica* by Packard many years ago. As the lake is fresh water, and not salt as Packard had been informed, it was evident that the larvae came from some other water. I found that two borax ponds near the lake were well known, and made a visit to one of these, where I speedily found *E. hians*, which seemed to settle the identity of Packard's species. I also found the same large, undescribed *Lispa* which accompanied *hians* on the shores of Great Salt Lake.

The papers which I have published on the results of the trip are the following:

1. Larvae of a Saturniid Moth Used as Food by California Indians. Jour. N. Y. Ent. Soc., xx, 1-4, 1 pl.; Mar., 1912.
2. Flies of the Leptid Genus *Atherix* Used as Food by California Indians. Ent. News, xxiii, 150-163; Apr., 1912.
3. The Biology of Some Western Species of the Dipterous Genus *Ephydra*. Jour. N. Y. Ent. Soc., xx, 77-99, 3 pl.; June, 1912.
4. Two Western Species of *Ephydra*. Ibid., 100-103; June, 1912.
5. The North American Species of the Dipterous Genus *Lispa*. Jour. N. Y. Ent. Soc., in press.